

New and Improved Lithium-Ion Battery, Phase I

Completed Technology Project (2011 - 2011)



Project Introduction

This project is a partnership effort between American Energy Technologies Company (Illinois), Yardney Technical Products (Connecticut) and A.J. Drexel Nanotechnology Institute of Drexel University (Pennsylvania). The proposing team seeks to demonstrate tangible improvement in the performance of Lithium-Ion batteries by way of increasing their specific energy density beyond 300 Wh/kg at C/2 in the range of temperatures, at a minimum, from 60

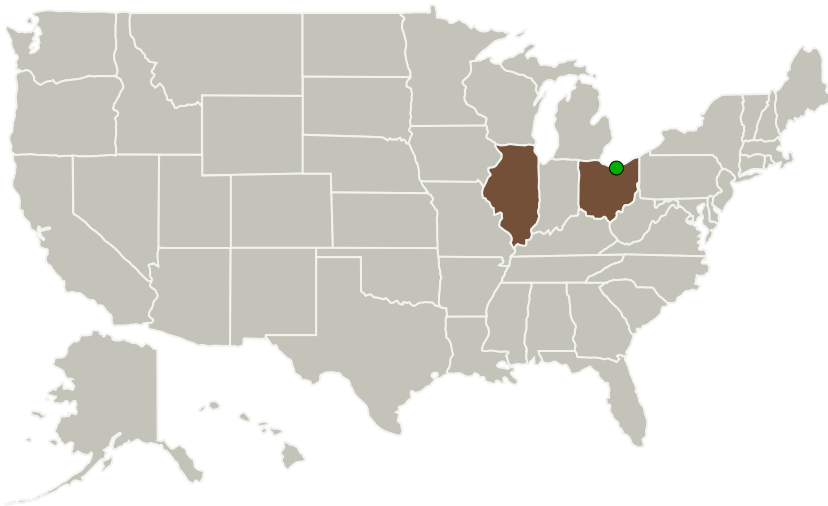
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C to 0

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C. The battery will use newly developed Silicon-doped, stabilized graphitic anode; Lithiated mixed oxide cathode, in its turn, doped with nano-sized cycling stability-enhancing additives; and an innovative inherently safe electrolyte system based on ionic liquids. Special focus of the development effort shall be directed towards creation of scaleable Si-doped carbon material for the battery anode. Cell optimization effort will focus on methodic rebalancing of the classic anode to cathode ratios, by devising unique, highly efficient cathode of increased thickness in support of operation of thin anode, whose specific capacity will vary from 300 to 2,000 Ah/kg at C/2.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
American Energy Technologies Company	Lead Organization	Industry Women-Owned Small Business (WOSB)	Arlington Heights, Illinois
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations

Illinois	Ohio
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Project Transitions

**February 2011:** Project Start**August 2011:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/138350>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

American Energy Technologies Company

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Igor Barsukov

Co-Investigator:

Igor Barsukov

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Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.2 Energy Storage
 - └ TX03.2.1 Electrochemical: Batteries

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System